Annex to COCOM Doc.3700.1

1051 Spar Millers

Delete.

This item relates to machinery for the manufacture of aircraft. The change in production in the bloc from military to civil aircraft, makes it, reasonable to suppose that any additional manufacturing capacity would even now be used at the outset mainly for civil types. Moreover, it could be expected that, by the time when components manufactured with the additional capacity had been assembled into aircraft and these aircraft had gone into service, the bloc's total current production of aircraft, from the new and the old capacity together, would be predominantly civil. No important "know-how" is involved, and there is no evidence of a critical shortage in the bloc.

1070 Forging hammers
1072 Presses, mechanical or hydraulic

Delete.

The machines under both heads are used predominantly for civil purposes. No vital "know-how" is involved and there is no evidence of critical shortage in the bloc.

1305 Metal rolling mills

Delete. (See United Kingdom submission in COCOM Doc 3413.65/1)

1460 Redefine as follows:-

Aircraft, aero-engines and aircraft equipment as follows:-

(a) Aircraft n.e.s. except those which:-

(i) are of types and series which have been in normal civil use for more than two years or

(ii) being of types and series in normal civil use are under 90,000 lbs. empty weight and

(iii) do not contain or incorporate any Munitions List items;

(b) Aero-engines except those which:-

(i) are of turbo-prop, turbo-shaft and turbo-jet types and series which are the standard engines of aircraft excepted under (a) (i) and (ii) above;

(ii) are of piston types;

(iii) are of turbo-jet types with a maximum thrust of less than 7,000 lbs. and of which the most advantageous specific weight is not less than 0.15 (weight/thrust) and which have been in production for over two years.

(c) Ground and airborne equipment n.e.s. developed solely or used mainly for aircraft, except ground or airborne equipment of types in normal civil use.

NOTES: 1. The condition at (a) (iii) applies to both alternatives at (a) (i) and (ii).

2. Empty weight of an aircraft is understood to include normal installation and normal minimum crew but does not include fuel or payload.

3. The supply or installation of equipment covered by Items 1485 and 1501 in aircraft to be exported to the Sino-Soviet Bloc is prohibited.

The United Kingdom proposes to amend this item in order to clarify its application to aero-engines. The new sub-clause (b) covering aero-engines will free from embargo all engines which are the standard fit of the aircraft freed under 1460(a) (this represents no change from existing practice). In addition the U.K. proposal would free from embargo all piston engines and certain small turbo jet engines with a maximum thrust of less than 7,000 lbs, of which the most advantageous specific weight is not less than 0.15 (weight/thrust) and which have been in production for over two years. These amendments are intended to recognise that the first use to which a particular engine is put is not always a reliable way of determining its strategic value since comparable engines may in one country be purely military and in another be in normal civil use.

1485 (d), (e) and (i). Redefines as follows:-

Compasses and gyroscopic equipment as follows:-

(d) Integrated flight instrument systems for aircraft including

(i) Gyro stabilisers;

(ii) Automatic pilots;

Except those which are of types and series having been in normal civil use for more than two years and which are the standard equipment of the aircraft excluded from control under Item 1460.

(NOTE. An integrated flight instrument system is a primary instrument display system of attitude and azimuth with facilities for giving manoeuvre guidance information to the pilot and often integrated with an auto-pilot to the extent of embodying a common unit for setting up the required demands.)

(e) Gyro-magnetic compasses, except those which are of types and series having been in normal civil use for more than two years and which are the standard equipment of the aircraft excluded from control under Item 1460.

(i) Specially designed parts and components for the above, except for equipment exported under (d) and (e).

The U.K. proposes to amend this item so as to permit the separate export of civil equipments already freed from embargo when exported inside an aircraft. It is considered illogical to maintain the present position which permits not only the export of the complete equipments inside an aircraft but also the subsequent export of spare parts, and yet prohibits the export of the complete equipment on its own. Equipments freed by this proposal would in the U.K. view be of no strategic significance since they must have been in normal civil use for more than two years.

1501. Redefine as follows:-

Communication, navigation, direction finding and radar equipment, excluding Instrument Landing System/I.L.S./ or other equipment of equivalent characteristics and performance, n.e.s., as follows:-

(a) Airborne communication equipment and specialised parts and components therefor, with any of the following characteristics:-

(1) Designed to operate at frequencies greater than 156 Mc/s;

(2) Designed for Single Side Band Operation;

(3) Pressurised by any method;

(4) Rated for operation over a range of ambient temperatures extending from below -45°C to above + 75°C.

(b) Airborne navigation equipment and direction finding equipment as follows:-

(1) Designed to make use of "Doppler" frequency phenomena;

(2) Utilising the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves having frequency less than 4×10^{14} cycles per second (0.75 microns) except:-

(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second.

(ii) Very High Frequency Omni Range (V.O.R.)or other equipment of equivalent characteristics and performance.

(iii) Distance Measuring Equipment (D.M.E. or D.M.E.T.) or other equipment of equivalent characteristics and performance.

(3) Pulse modulated altimeters.

(4) Direction finding equipment operating at frequencies greater than 5 Mc/s.

(5) Pressurised by any method.

(6) Rated for operation over a range of ambient temperatures extending from below -45°C to above +75°C.

(c) Airborne radar equipment.

(d) Ground and marine radar equipment, as follows:-

(1) Radar equipment, n.e.s., other than those normal equipments designed for pulse operation at frequencies between 1,300 Mc/s and 1,660 Mc/s, 2,700 Mc/s and 3,900 Mc/s, or 8,500 Mc/s and 10,000 Mc/s, having in the case of marine radar, a peak output power to the aerial system not greater than 75KW or, in the case of ground-based radar, having a peak output power to the aerial system not greater than 50KW and a range not greater than 50 nautical miles.

NOTE. The 50 nautical miles range is intended to refer to the maximum useable range on the largest size heavier-than-air target.

(2) Radar equipment incorporating Permanent Echo Cancellation facilities and/or circular polarisation, but excluding variable plane polarisation systems.

(3) Radar equipment utilising other than conventional pulse modulation and signal processing techniques.

(e) Ground and marine equipment for use with airborne navigation equipment utilising the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves having frequency less than 4×10^{14} cycles per second (0.75 microns) except:-

(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second.

(ii) Very High Frequency Omni Range (V.O.R.) or other equipment of equivalent characteristics and performance.

(iii) Distance Measuring Equipment (D.M.E. or D.M.E.T.) or other equipment of equivalent characteristics and performance

(f) Specialised parts, specialised accessories specialised testing or calibrating equipment and training or simulating equipment, n.e.s., for the apparatus listed in (b) to (e) above.

The main effect of this amendment is to generalise the administrative exceptions which at present apply only to equipment for aircraft on scheduled services to the free world. In the U.Ks view it is unrealistic to maintain an embargo on equipment whose export may be allowed under these administrative exceptions. There is nothing to stop the Sino-Soviet bloc changing the operating mode of aircraft needed for internal services to foreign service and vice versa. In this way the whole of their civil aircraft could be fitted with imported equipment.

The deletion of the existing (a) (3) and (a) (4) is proposed because the U.K. considers that the "know-how" in crystal-saving technique has now been thoroughly compromised by the sale of Belgian Convairs equipped with U.S. Collins sets. Apart from this the techniques of multi-channel and crystal-saving are now well known.

In (b) (2) the U.K. has retained the present general form of the definition in order to ensure that any new navigation system will be embargoed until the decision is taken to free it. Exceptions to the sub-item have been added so that it is clear that the common aviation aids are free. This is necessary since the present general form of the definition does not lend itself to excluding such equipment by technical description. Similar amendments to paragraph (c) are proposed; this covers the ground counterparts of those navigation equipments.

(b) (5) and (b) (6). These new clauses are added for consistency with paragraph (a) and, since they cover equipments of military interest, should have been included previously.

(d) (1). The U.K. suggests the clause be amended to read in the references to peak output powers "not greater than 75KW" and "not greater than 50KW". This amendment is suggested in order to clarify the position on marine and ground based radars whose specifications quote output powers of exactly 75KW or 50KW.

(d) (2). This clause has been amended to free equipments with variable plane polarisation systems since these contain no "know-how". The embargo on true circular polarisation or permanent echo cancellation facilities has been retained.

(d) (4). This clause has been deleted because the equipment covered is predominantly civil.

(f). The position on radar trainers and simulators of embargoed equipment, previously embargoed as accessories, has been clarified.

1517. Redefine as follows:-

Radio Transmitters and components, n.e.s., except radio link and relay equipment as follows:-

(a) Transmitters or transmitter amplifiers designed to operate at output carrier frequencies greater than 330 Mc/s other than television broadcasting transmitters and amplifiers therefor operating between 470 and 585 Mc/s or between 610 and 940 Mc/s.

(b) Transmitters or transmitter amplifiers designed to provide any of the following features:-

(1) Any system of pulse modulation (this does not include amplitude, frequency or phase modulated television or telegraphy transmitters).

(2) Rated for operation over a range of ambient temperatures extending from below -45°C to above 75°C.

(c) Components and sub-assemblies, including modulators and modulation amplifiers, specially designed for use in transmitters covered by sub-items (a) and (b).

The deletion of clause (a) (1), and its note, to free normal types of civil ground-to-air transmitters operating on the 108-156 Mc/s frequency band corresponds to the proposed deletion in 1501 of normal airborne communication sets.

In (a) (2) the United Kingdom considers that on the basis of frequency usage in the Sino-Soviet bloc the figure of 223 Mc/s should be amended to 330 Mc/s.

In (b) (1) the addition of "or telegraphy transmitters" clarifies the intention of the clause, but does not embody a change in the embargo.

The U.K. proposes the deletion of clause (b) (2) because the techniques are now well known and with the passage of time, it is increasingly difficult to justify retention on grounds of military importance.

The United Kingdom proposes the deletion of (b) (3) and (b) (5), multi-channel and crystal-saving transmitting equipment, on which it is considered that the "know-how" has been compromised. This corresponds to the suggested deletion of I.L.1501(a)3 and (a)4.

1521. Redefine as follows:-

Amplifiers, n.e.s. as follows:-

(a) Designed to operate at frequencies in excess of 500 Mc/s.

(b) Tuned amplifiers having a bandwidth (defined as the band of frequencies over which the power amplification does not drop to less than one-half of its maximum value) which exceeds 10 Mc/s or 10 per cent of the mean frequency, whichever is less. (The mean frequency is defined as the arithmetic mean between the frequencies at which the power amplification is one-half of its maximum value).

(c) Untuned amplifiers having a bandwidth, as defined in sub-item (b) above, which exceeds 10 Mc/s.

(d) D.C. amplifiers having a noise level (referred to the input circuit) of 10^{-16} watts or less and/or a zero drift in 1 hour corresponding to a change in input power of 10^{-16} watts or less.

The amendment of 300 Mc/s to 500 Mc/s in (a) is proposed in the light of the latest information available to U.K. and corresponds with the frequency change on I.L.1529 Electronic Instruments. That is to say the change of frequency will release some amplifiers but retain embargo on those using bands of principally military interest.

1529. Redefine as follows:-

Electronic instruments as follows:-

(a) Those operating at frequencies in excess of 500 Mc/s.

(b) (i) Frequency measuring equipment and frequency standards with an accuracy better than 0.00C0001% (1 part in 10^9).

(b) (ii) Frequency generating equipment suitable for use in aircraft with an accuracy better than 0.000001% (1 part in 10^8).

The amendments proposed will release a certain amount of general purpose electronic test gear without encroaching significantly into the frequency bands of strategic interest. The changes in the frequency standard definition will retain control over the most specialised and modern developments.

The omission of the words "except radio spectrum analysers" will have the effect of embargoing radio spectrum analysers above 500 Mc/s, at present embargoed by item 1533, which can then be deleted.

1541. Redefine as follows:-

Cathode-ray tubes, as follows:-

(a) Specially designed or in use for radar equipment covered by item I.L.1501, other than those cathode ray tubes with a persistence longer than 5 seconds when measured as the time for the brightness to decay from 1 foot lambert to 0.01 foot lambert and a trace width under optimum focussing conditions greater than a maximum of 0.20 millimetres using a travelling microscope method of measurement.

(b) With writing speeds of more than 3,000 kilometers per second;

(c) With three or more electron guns.

The U.K. proposes the amendment to (a) in order to free from embargo the normal types of cathode ray tubes used in radar not embargoed by I.L.1501, whilst still retaining control over the more specialised types which are of mainly military interest.

1545. Redefine as follows:-

Transistors and related devices (or related semi-conductor amplifying devices such as fieldistors, spacistors and technetrons) and specialised parts therefor, the following:-

(a) of any type using a bulk semi-conductor material other than germanium;

(b) having any of the following characteristics:-

(1) Designed to have an average small signal alpha cut-off frequency in the common base configuration greater than 100 MC/s, or f1 frequency greater than 125 Mc/s, and a maximum collector dissipation greater than 150 milliwatts in an ambient temperature of 25° centigrade under any cooling conditions;

(2) Designed to have an average small signal alpha cut-off frequency in the common base configuration greater than 20 Mc/s, or f1 frequency greater than 25 Mc/s, and a maximum continuous collector dissipation greater than 1 watt in an ambient temperature of 25°centigrade under any cooling conditions;

(3) Designed to have an average small signal alpha cut-off frequency in the common base configuration greater than 300 Mc/s.

(NOTES: (a) A transistor is an electronic device incorporating a semi-conducting material, in which the current flowing between two electrodes is controlled by the voltage or current at another electrode. Subject to the above definition, this item is intended to cover all devices incorporating a semi-conducting crystal of any material with three or more electrodes, which are used as amplifiers, oscillators, trigger devices, etc. in electronic circuits.

(b) The average value referred to above is the"design centre" for the ratings. This figure is not necessarily the arithmetical mean of the minimum and maximum figures.)

The U.K. proposes to amend the definition so that there is no danger of differences in interpretation between member countries. New limits have been proposed in order to free common types of transistors whilst retaining control on those types of military significance.

1793. Hydraulic fluids, petroleum based

Delete.

The definition catches hydraulic fluids widely used in civil aircraft. There is no evidence that the bloc lacks fluids of this kind, the composition and methods of manufacture of which are well known.